

Applicants respectfully request reconsideration and reexamination of the above-referenced patent application in view of the following amendments and remarks.

**Amendments to the Claims**

Please amend claims 15, 17, 28, and 30 as noted on the attached sheet of paper. Please cancel claims 1-14 and 19-27 without prejudice or disclaimer of the subject matter contained therein. As required by 37 C.F.R. § 1.121(c), the amended claims are rewritten with all changes included. In addition, as permitted under 37 C.F.R. § 1.121(c)(3) and as requested by the Examiner, a clean version of all of the pending claims is submitted as a single amendment paper, which is attached to this response. Also attached is the compare copy of the claims, marked to show all of the changes relative to the previous version of the claims. As permitted under 37 C.F.R. § 1.121(c), a compare copy is not provided for cancelled claims.

**REMARKS**

Claims 1 to 30 are pending. Claims 1-14 and 19-27 have been cancelled herein without prejudice or disclaimer of the subject matter contained therein. These claims have been cancelled to expedite prosecution of claims 15-18 and 28-30, for which there are no outstanding rejections under 35 U.S.C. §103. This action does not indicate that Applicants have acquiesced in the Examiner's rejection of the cancelled claims, which will be pursued in a continuation application. Accordingly, after entry of this amendment, claims 15-18 and 28-30 will be pending in the application.

Claims 15, 17, 28, and 30 have been amended herein. Claim 15 has been amended to incorporate the limitations of claim 9, from which it previously depended. Claims 17, 28, and 30 have been amended to depend only from those claims not cancelled. A dependency from claim 15, which now includes the limitations of claim 9, was added to replace a dependency on claim 9. Accordingly, no new matter has been added by these amendments which are made to better define the claimed invention and entry of these amendments is respectfully requested.

Applicants assume that any rejections not repeated in the outstanding office action have been withdrawn.

As only claims 15-18 and 28-30 will be pending in the application after entry of the amendment, Applicants address below only the remaining rejections applicable to those claims.

**I. Rejections Under Section 112, Second Paragraph.**

Claims 15-18 and 28-30 are rejected, as part of a rejection of claims 1-30, for various reasons as purportedly being unclear under § 112, second paragraph. Applicants respectfully traverse these rejections. The individual rejections of the claims pending after entry of the above amendment are discussed below.

A. Claims 16 and 29 are rejected under § 112, second paragraph, as allegedly being unclear what is the nature of “exogenous matrix components” and what is encompassed by “synthetic members.” Claim 15 now includes the limitations of claim 9, which was also rejected for the same reason.

This invention is directed to an *in vitro* cultured tissue construct of cultured cells and endogenously produced extracellular matrix components. The invention is also directed to the method for producing this cultured tissue construct.

Prior art tissue constructs were constructed with a variety of techniques, but all of these prior art techniques employed either exogenous matrix components or synthetic members during the culturing conditions, or both. (See specification, page 3, lines 5-7, “Heretofore, current engineered living tissue constructs are not completely cell assembled and must rely on either the addition or incorporation of exogenous matrix components or synthetic members for structure or support, or both.”)

For instance, one of the cited references, Bell, U.S. 4,485,096, teaches how to make a skin-equivalent by growing keratinocytes on contracted collagen lattices. Bell teaches that keratinocytes can be plated at the time the matrix gel forms, at any time while the lattice is contracting, or at any time after the contraction is completed (col. 4, lines 19-22). The keratinocytes form a confluent layer on the lattice surface (col. 4, line 24). This teaching shows the prior art reliance on exogenous matrix components, such as the contracted collagen lattices described in Bell. In the instant application the extracellular matrix is produced by the cultured cells in the absence of exogenous matrix components or synthetic members.

The specification of the instant application clearly states that exogenous matrix components are matrix components not produced by the cultured cells but introduced by other means (page 4, lines 6-7). Thus, the matrix is "completely cell-synthesized and assembled by culturing the cells" (page 4, lines 3-4).

The specification further states that synthetic members are used for structure or support or both. (page 3, line 7). An example is a mesh member for the formation of the tissue constructs (page 10, lines 21-29).

Applicants submit that the terms "exogenous matrix components" and "synthetic members" are clear in light of this description in the specification. For these reasons, the Examiner is requested to reconsider and withdraw the rejection.

✓ D. Claims 15-18, 28, and 30 are rejected under § 112, second paragraph, as allegedly being unclear as to the metes and bounds of cultured "under conditions to produce a layer of extracellular matrix."

It is well-established that the determination whether a claim is invalid as indefinite depends on whether those skilled in the art would understand the scope of the claim when the claim is read in light of the specification. The specification clearly describes the supplementation of the medium with components that assist in matrix synthesis, secretion, or organization (page 16, line 3 to page 17, line 24). The specification additionally describes the environmental conditions of controlled temperature, humidity, and gas mixture in which the cultures are maintained (page 17, lines 25-28). Therefore, one skilled in the art would understand the scope of this claim language when read in light of the specification.

For this reason, the Examiner is requested to reconsider and to withdraw this rejection.

## II. Rejections Under Section 103.

The currently pending claims after entry of the amendment are not rejected under 35 U.S.C. § 103. Accordingly, Applicants respectfully submit that these rejections have been rendered moot.

**IV. Conclusion.**

Applicants respectfully submit that all the bases for rejection of the pending claims are now moot. The Examiner is requested to reconsider the rejections and to withdraw them and to pass this case to issuance.

Respectfully submitted,



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Attachments: Copy of Pending Claims amended with this Response  
Marked-Up Copy of Amended Claims